

Journal of Research in Education

(A Peer Reviewed and Refereed Bi-annual Journal)
(SJIF Impact Factor 3.393)



December, 2022

Vol. 10, No. 2

St. Xavier's College of Education (Autonomous)

Digha Ghat, Patna
Bihar - 800011
India

CONTENT & AUTHOR

- 1. Development of Thinking Maps for Promoting Visual Literacy in Biology Among Secondary School Students**
Sinu Raichy Alex
Dr. Sobha V. K.
- 2. उच्च माध्यमिक स्तर के विद्यार्थियों के जोखिमपूर्ण व्यवहार व आकांक्षा स्तर का अध्ययन**
डॉ. सुधीर कुमार
- 3. Factors to Measure E-learning Readiness among Students**
Ishfaq Majid
Dr. Y. Vijaya Lakshmi
- 4. Linguistic Creativity Test: Construction and its Validation**
Amrita Singh
Dr. Madhu Singh
- 5. Awareness About Virtual Learning Among Prospective Teachers**
Sajith Lal Raj S.T.
- 6. Competency in ICT Among Secondary School Teachers in relation to gender and locality**
Raj Laxmi
Dr. Shaguftah Jabin
- 7. Effectiveness of Toon Graphics Technique on Reading Comprehension in English among Primary School Students**
Jini Jacob
Dr. Sobha V. K.
- 8. A Study on Life Skills of Prospective Teachers**
Dr. C. Maria Ugin Joseph
- 9. बी० एड० प्रशिक्षणार्थियों का एड्स के प्रति जागरूकता का अध्ययन**
डॉ. निक्षी कुमारी
- 10. Impact of Academic Stress on Academic Achievement of Upper Primary School Students of Employed Mothers**
Ms. Anila
Dr. Sam. V. Daniel



Dr. Y. Vijaya Lakshmi

Assistant Professor

Centre for Studies & Research in Education,
School of Education
Central University of Gujarat

Ishfaq Majid

Research Scholar

Factors to Measure E-learning Readiness Among Students

Abstract

This present study reports about the factors that determine the readiness of students towards E-learning. Through a small-scale literature review, efforts were made to identify the key factors that determine the readiness of students towards E-learning. The researcher used technique of content analysis for reviewing the literature. The literature was collected from various databases like Google Scholar, Research Gate, Academia, ERIC and various publication house websites like Sage, Taylor and Francis, Wiley, and Emerald. The findings of the review of literature suggest that the factors and its components that determine the ELR among students are diversified. However, "Technological Readiness, attitudinal Readiness, Basic Internet Skills and Motivation" are the factors that have been largely used by the researchers to determine ELR of Students.

Keywords: *E-learning, E-learning Readiness (ELR), E-learning Readiness Factors, Higher Education (HE)*

Introduction

Education is considered to be a light that shows the right direction for mankind to rise. The aim of education is not just to make students literate, but it also develops various life skills among students and makes them self-sufficient (Kalaivani, 2014). Education is considered as a tool which helps in overcoming the problems of societal change. Education is undergoing through a complete process of transformation,

particularly with regard to delivery and pedagogies (Pingle, 2011). The Indian Higher Education(HE) system is considered as one of the largest system of HE in the world. Since Independence, India's HE sector has seen a remarkable increase in the number of Colleges and Universities (Sheikh, 2017). Today, there is a continuous increase in the number of enrolments in HE institutions (HEI's). It is believed that the student enrolment in HE saw an increase of 11.4% between 2015-2020. The total number of enrolment in HE was witnesses as 3.85 crore in 2019-2020 as compared to 3.74 crore in 2018-2019 which indicates an increase of 11.36 lakh (3.04 %) (Sharma, 2021). Further, in future there might be more and more students who will be approaching HE institutions in the country for the purpose of getting quality education. As far as National Education Policy (NEP) is concerned, one of the main goal of the policy is to have gross enrolment ratio (GER) of atleast 50% in HE by 2035. As the current GER is standing at just 26.3 %, and for doubling it in the next 15 years will need extensive planning, great reforms and a sustainable implementation (Bhattacharjee, 2019). Due to the continuous increase in enrollment, the problem of better quality in HE has been a great concern for all who are directly or indirectly associated with the academic and education system (Singh, 2016). The students in India who want to have access to HE face innumerable challenges concerning infrastructure, language, physical barriers and socio-economic condition (Bhattacharya & Sharma, 2007). The availability of good and high-quality infrastructure provides various opportunities for facilitating better instruction. It improves the student's outcome and at the same time reduces the dropout rates. The development of Information and Communication Technology (ICT) has improved the practices of every sphere of human endeavor like business, governance and education (Pegu, 2014). The implementation and the utilization of ICT in education has a positive impact on teaching, learning and research (Habib, 2017; Amin, 2013; Shamim & Raihan, 2015). The development of ICT and the utilization of internet as a new practice of teaching and learning has brought lot of changes in the traditional process of teaching and learning. It has created lot of choices for today's education and E-learning is one among them. For addressing the challenges of todays HE, E-learning is considered a proper solution which gives highest priority in solving these issues

(Lakshmi, et al., 2020). Today, the educational institution in the world have recognized E-learning as a powerful instrument which has the ability to transform knowledge, skills, and performance of people (Henry, 2001). E-learning is seen as a solution in developing countries to meet the rising demand for HE (Ngampornchai & Adams, 2016). It also enhances the quality of HE by increasing the students' interest, motivation, and engagement (Pavel, 2015). E-learning is utilized as a web-based technology which is used to provide activities like simulations in classroom-based teaching and learning (Thaufeega, 2016).

Defining E-learning

E-learning is using electronic media, information, and communication technologies (ICT) and educational technology in education. E-learning is defined as a “new version of learning which is applied to via the Internet technologies and involves the educational activities which do not require the presence of the teacher and learner at the same time and place” (Nehru, 2013). The term “E-learning” has been taken from Anglo-Saxon literature (Pavel et.al. 2015; Rao et al., 2018; Linus, 2019). It encompasses not only virtual learning bet web-based learning as well (Pingle, 2011; Mckimm et al. 2003; Wolfe & Cedillos 2015). E-learning comprises of usage the internet and various other communication technologies that help in producing learning materials, teaching learners, and managing the courses in an organization (Fry, 2001). E-learning is being considered as the best medium for providing quality education and training. It enhances the learning of students by making the delivery system two way instead of one-way. E-learning is considered as the future of learning where the focus will be both on the requirements of the individuals and the content delivered (Furaydi, 2013). E-learning covers a range of processes, applications and learning methods (Rossi, 2009). It provides a collaborative platform to the students to share their thoughts and views and also have discussions for clarifications on the content. E-learning is an approach of providing guidance and delivering information to students. It is a type of education where the medium of instruction is computer technology (Pingle, 2011). Several universities have designed courses that can be accessed using laptop, desktops, or other smart devices. These courses are developed in such a way that the students need not to be physically

in the classroom but can access them from any place convenient to them at any time and in any pace. The success of E-learning approach depends on the readiness of stakeholders to accept it, and this gives birth to another concept i.e., E-learning Readiness(ELR). Thus, accepting and implementing E-learning can be better when individuals have readiness towards it.

E-learning Readiness (ELR)

ELR is necessary to make sure that the users are competent in using the technology-based E-learning in the best possible way (Hashim & Tasir). The Assessment of ELR facilitates an organization to design the strategies for E-learning and to execute its ICT goals successfully (Kaur & Abas, 2004). Applying E-learning in the educational institution, it helps the universities and schools to assist their learners in enhancing their learning opportunities (The & Usagawa, 2018). ELR may be defined as the level of readiness of students, academic staff and institutions towards E-learning technologies (Hashim & Tasir, 2014). Bowles (2014) in a related study defines ELR as the assessment of Readiness of an institution to adopt and implement E-learning. For assessing the readiness towards E-learning, there are some factors that are being used to measure the ELR. While considering E-learning as a feasible option to deliver instructions and training, these factors should be taken seriously (Eslaminejad, 2010). To determine the ELR of a university, academic staff members as well as learners should be considered first. Assessment of ELR includes the ability of learners to adjust to technological advancement, collaborative training, and synchronous and asynchronous self-paced training. The readiness among learner's need to be resolved before the educational institutions introduce E-learning as it requires that the learners make use of the internet, work together with their peers, and discuss with their trainer for support (Alessi & Trollip, 2001). The learners should be ready with respect to adopting to the responsibility of a self-driven mode of training, react to the challenges that are posed by technology, and more importantly there is requirement to be disciplined to learn alone and to react to online instructions. It is essential that that the learners and teachers must be "e-ready" so that a proper strategy could be planned which is based on the need of learners and teachers. The assessment of ELR becomes mandatory when any educational institution plans to implement E-learning.

Methodology

In the present study, the researchers have tried to do an in-depth study about the factors that determine ELR among students. The study is a small literature review where the researcher explored the related literature by visiting various database like “Google Scholar, ERIC, JStor, Researchgate and Academia” and various publication house websites like “Sage, Taylor and Francis, Wiley, and Emerald”. The researchers searched the keyword “E-learning Readiness among Students” on these above-mentioned websites. The researcher reviewed 15 studies for the current study through the technique of content analysis. Moreover, the researchers selected only those studies, which were carried out between the year 2010 to 2020.

Discussion

The review of the literature revealed that the research in the field of ELR is continuously going on. The table 1 shows the results of the researches that were related to the measuring the readiness for E-learning in HEI.

Table 1: Studies on ELR of Students along with factors of FLR

Researcher	Title of the Paper	Factors
Widyanti et al. (2020)	“E-learning readiness and perceived learning workload among students in an Indonesian university”	“Computer/Internet self-efficacy, Self-directed learning, Learner control, Motivation, Online communication self-efficacy”
Hadining et al. (2019)	“An Investigation of Student Perspective for E-learning Readiness Measurement”	“People Readiness, Self-development Readiness, Technology Readiness, and Innovation Readiness”
Obi et al. (2018)	“E-learning Readiness from Perspectives of Medical Students: A Survey in Nigeria”	“Basic ICT skills, Technology, Content readiness, Culture readiness, Attitude”

Coopasami et al. (2017)	“E-learning readiness amongst nursing students at the Durban University of Technology”	“Psychological, Equipment and Technological readiness”
Caliskan et al. (2017)	“University Students' Readiness for E-learning”	“Computer Self-Efficacy, Internet Self-Efficacy, Online Communication Self-Efficacy, Self-Learning, Learner Control and Motivation for E-learning”
Yilmaz (2017)	“Exploring the role of E-learning readiness on student satisfaction and motivation in flipped classroom”	“Computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-directed learning, learner control and motivation towards E-learning, Satisfaction and Motivated Strategies”
Naresh et al. (2016)	“A Study on the Relationship Between Demographic Factor and e-Learning Readiness among Students in Higher Education”	“Technology, Group learning, Meticulous and Disciplined explorer”
Contreras & Hilles (2015)	“Assessment in E-learning Environment Readiness of Teaching Staff, Administrators, and Students of Faculty of Nursing-Benghazi University”	“Technology, Attitude”

Rahim et al. (2014)	“Assessing Students Readiness Towards E-learning”	“Basic Internet skills, access to technology and attitude”
Doculan (2014)	“E-learning Readiness of the Ifugao State University”	“Technology Skills, Basic Computer Skills, Internet Skills, Software Application, Study Habits, Abilities, Motivation, Time Management”
Ünal et al. (2014)	“Students Readiness for E-Learning: An Assessment on Hacettepe University Department of Information Management”	“Technology, self-confidence, acceptance level and training level”
Okinda (2014)	“KTTC's E-learning Readiness Survey”	“Technology, Content, Culture and Organization Industry”
Liaw & Huang (2011)	“A study of investigating learners' attitudes toward E-learning”	“Technology and Attitude”
Tubaishat & Lansari (2011)	“Are Students Ready to Adopt E-learning? A Preliminary E-readiness Study of a University in the Gulf Region”	“Technology, Infrastructure, Internet usage, and general understanding of E-learning and culture”
Ali (2010)	“Measuring Students E-Readiness for E-learning at Egyptian Faculties of Tourism and Hotels”	“Technical and Learning Skills, Time management behaviors”

Table 2: Frequency of ELR factors as used by researchers

Factors	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th
Technological	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
Psychological				1											1
Equipment				1											1
Attitude			1				1	1			1				4
Learning Skill													1		1
People Readiness		1													1
Self-development Readiness, Group learning, Meticulous and Disciplined explorer			1											1	2
Innovation Readiness		1													1
Basic Internet skills			1						1	1					3
Self-Learning, Learner Control					1										1
Motivation	1			1	1			1							4
Infrastructure												1			1
Culture			1						1		1				3
Study Habits and Satisfaction								1							1
Content readiness			1							1					2
Organization Industry and Self confidence										1			1		2
Online communication	1				1										2
Number of factors	3	4	5	3	4	2	2	2	4	5	2	3	2	2	2

Table 2 provides an overview of the frequency of the factors that have been used by investigators to measure ELR among students. From the above table it can be analyzed that Technological Readiness, attitudinal Readiness, Basic Internet Skills and Motivation are factors that have been used largely by the researchers while identifying the ELR among students.

Factor Wise Analysis

I) Technological

Technological readiness is considered as an important factor for determining ELR. As per table 1.2, the factor has been used by 13 studies for measuring ELR among students. Coopasami et al. (2017) used Technological readiness to measure whether the students possess the technical skills for E-learning. The researcher modified the ELR scale developed by Chapnick to measure the ELR among students. The study was carried out in two phases i.e. pre-assessment phase and post-assessment phase. Contreras & Hilles (2014) used Technology as a factor for measuring ELR on a sample of 67 students. The researchers used Mercado (2008) ELR Assessment survey where technological readiness is a factor for measuring ELR. Ali (2010) developed a three-dimensional scale to measure ELR of students. The researcher used technology as a factor for measuring ELR on a sample of 62 students. The researcher aimed at measuring the technical and computer skills among students. Hadining et al. (2019) used ELR model developed by Aydin and Tasci (2005) to measure ELR among students on a sample of 100 students. Technological readiness was used as a factor for measuring ELR. Liaw and Huang (2011) conducted a study on 191 male and 233 university students to measure their readiness towards E-learning. The researchers developed a questionnaire which consisted of technology as a factor measuring ELR. The developed scale was 7-point likert scale. Ünal et al. (2014) developed a five-point likert scale consisting of 39 items to measure ELR of students. The researcher used technology as a factor for measuring ELR of 311 students. Naresh et al. (2016)

developed a questionnaire to measure ELR of 84 male and 46 female students. The researcher used technology as a factor for measuring the ELR. Tubaishat & Lansari (2011) used technology as a factor for determining ELR among 67 students. The researcher developed self-made questionnaire to measure ELR. Doculan (2014) employed a questionnaire on students to measure ELR. The research instrument included Technology as a factor for measuring ELR on 1672 students. Obi et. al. (2018) developed a semi-structured questionnaire to measure ELR of medical students in Nigeria. The researcher used technical skill and access to technology as components for the ELR scale. Okinda (2014) developed five point likert with technology as a factor for measuring ELR among students. The study was carried out on 591 regular and 1019 holiday students. Rahim et. al. (2014) developed structured questionnaire to measure ELR among students. The researcher used technology as a factor for measuring ELR among students on a sample of 110 students. The focus was laid on basic ICT skills and access to technology.

II) Psychological and Attitudinal Readiness

The psychological readiness plays an important role in E-learning implementation. As far as the table 1.2 is concerned, psychological readiness was used by 1 study and Attitudinal Readiness was used by 04 studies as a factor for measuring the ELR of students. Coopasami et al. (2017) used psychological readiness to measure ELR among students. The researcher studied the perception of students towards E-learning by modifying the ELR scale developed by Chapnick to measure the ELR among students. The study was carried out in two phases i.e. pre-assessment phase and post-assessment phase. Contreras & Hilles (2014) used Attitude as a factor to measure ELR of students. Through attitude, the researcher studies the students “abilities, motivations and time management” on a sample of 67 students. Liaw and Huang (2011) conducted a study on 191 male and 233 university students to measure their readiness towards E-learning. The researchers developed a questionnaire which

consisted of attitude as a factor for measuring ELR. The developed scale was 7-point likert scale. Rahim et al. (2014) developed structured questionnaire to measure ELR among students. The researcher used attitudinal readiness as factor for measuring ELR among students on a sample of 110 students. Obi et al. (2018) developed a semi-structured questionnaire to measure ELR of medical students in Nigeria. The researcher used attitude as factor for measuring the ELR.

III) Equipment Readiness, Learning Skill and Time Management Behaviour

The Table 1.2 reveals that the factor Equipment was used by 1 study to determine the ELR among students. Coopasami et al. (2017) used Equipment readiness to measure whether the students have ownership of technological tool like laptop, personal computer etc. The researcher modified the ELR scale developed by Chapnick to measure the ELR among students. The study was carried out in two phases i,e. pre-assessment phase and post-assessment phase. Ali (2010) developed a three-dimensional scale to measure ELR of students. The researcher used “Time management behaviour and Learning Skills” as a factor for measuring ELR on a sample of 62 students. The researcher aimed at measuring the technical and computer skills among students

IV) People Readiness, Self-development Readiness and Innovation Readiness

Regarding the factors like “People Readiness, Self-development Readiness and Innovation Readiness”, as per table 1.2, the factors were used by 01 study to measure ELR among students. Hadining et al. (2019) used ELR model developed by Aydin and Tasici (2005) to measure ELR among students on a sample of 100 students. People Readiness, Self-development Readiness and Innovation Readiness were used as factors for measuring ELR among students.

V) Basic Internet skills, Basic ICT Skill, Access to technology, Basic Computer Skills, Internet Skills

Rahim et. al. (2014) used Basic Internet skills and access to technology towards E-learning as factors for measuring the ELR among students. The researchers used a structured questionnaire on a sample of 110 students. Obi et al. (2018) used Basic ICT skills for determining ELR among students. The sample of the study consisted of 284 medical students. The researchers used a semi-structured questionnaire for the collection of data. Doculan (2014) employed a questionnaire on students to measure ELR. The research instrument included Basic Computer Skills, Internet Skills as factors for measuring ELR on 1672 students.

VI) Computer Self-Efficacy, Internet Self-Efficacy, Online Communication Self-Efficacy, Learner Control

Caliskan et. al. (2017) used Computer Self-Efficacy, Internet Self-Efficacy, Online Communication Self-Efficacy, Self-Learning, Learner Control and Motivation as factors for measuring ELR among university students. The sample of the study consisted of 160 students. Yilmaz (2017) used Computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-directed learning, learner control motivation towards E-learning, Satisfaction and Motivated Strategies as factors for determining ELR among students. The study was conducted on a sample of 236 undergraduate students. Widayanti et al. (2020) used Computer/Internet self-efficacy, Self-directed learning, Learner control, Online communication self-efficacy as factors for ELR. The researchers used a questionnaire on a sample of 51 University students.

VII) Infrastructure, Internet usage, Culture and Motivation

Tubaishat & Lansari (2011) used infrastructure, Internet usage, and culture for measuring ELR among University Student. The researchers developed a questionnaire and used on a sample of 67 students. Obi et al. (2018) developed a semi-structured questionnaire to measure ELR of medical students in Nigeria. The researcher used Cultural readiness for measuring ERL on a

sample of 284 medical students. Doculan (2014) employed a questionnaire on students to measure ELR. The research instrument included Motivation as a factor for measuring ELR on 1672 students. Okinda (2014) developed five point likert with Culture as a factor for measuring ELR among students. The study was carried out on 591 regular and 1019 holiday students. Widayanti et al. (2020) used motivation as factors for ELR. The researchers used a questionnaire on a sample of 51 University students.

VIII) Study Habits and Organization Industry and Content Readiness

Doculan (2014) employed a questionnaire on students to measure ELR. The research instrument included study habits as a factor for measuring ELR on 1672 students. Okinda (2013) content and Organization Industry as factors for ELR among students. The researcher used five point likert scale on a sample of 1,610. Obi et al. (2018) used Content readiness for measuring ELR on a sample of 284 medical students.

Conclusion

On the base on a small-scale review of literature on ELR among students where the studies carried out between year 2010 and 2020 were reviewed, the researchers found that all the studies that were selected for the literature review were having a separate section on knowing the demographic information of the students. The studies analyzed Technological, Psychological, Equipment, Attitude, Learning Skill, Time management behaviours, People Readiness, Self-development Readiness, Innovation Readiness, Basic Internet skills, access to technology, Self-Learning, Learner Control, Motivation, Infrastructure, Culture, Study Habits and Satisfaction, Content readiness, Organization Industry, Online communication, Self-Directed Learning and. Self-Competence. The findings of literature review suggest that the factors and its components that determine the ELR among students are diversified. However, Technological Readiness, attitudinal Readiness, Basic Internet Skills and Motivation are the factors that have been largely used by the researchers to determine ELR among Students.

References

Alem, F., Plaisent, M., Zuccaro, C., & Bernard, P. (2016). Measuring E-learning readiness concept: scale development and validation using structural equation modeling. *International Journal of e-Education, e-Business, e-Management and E-learning*, 6(4), 193- 207.

Alessi, S. M., & Trollip, S. R. (2001). Multimedia for learning: Methods and development (3rd ed.). Boston, MA: Allyn & Bacon, Inc.

Ali, I. E. H. (2010). Measuring Students E–Readiness For E–Learning at Egyptian Faculties of Tourism and Hotels. *Conference proceedings of E-learning and Software for Education (eLSE)*, 01, 145-154.

Amin, S. N. (2013). An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience: ICT as a change agent for education (A Literature review). *Scholarly Journal of Education*, 2(4), 38-45.

Bhattacharjee, S. (2019). Increasing enrolment in higher education: A quantitative and qualitative challenge. *Observer Research Foundation*.

Bhattacharya, I. & Sharma, K. (2007). India in the knowledge economy – an electronic Paradigm. *International Journal of Educational Management*, 21(6), 543- 568.

Bowles, M. (2004). Relearning to E-learn: Strategies for electronic learning and knowledge. *Educational Technology & Society*, 7 (4), 219-220.

Caliskan, S., Tugun, V., & Uzunboylu, H. (2017). University students' readiness for E-learning. *Ensayos: Revista de la Facultad de Educación de Albacete*, 32(2), 35-45.

Contreras, J., & Hilles, S. M. (2015). Assessment in E-learning environment readiness of teaching staff, administrators, and students of Faculty of Nursing-Benghazi University. *International Journal of the Computer, the Internet and Management*, 23(1), 53-58.

Coopasami, M., Knight, S., & Pete, M. (2017). E-learning readiness amongst nursing students at the Durban University of Technology. *Health SA Gesondheid*, 22(1), 300-306.

Doculan, J. (2014). E-learning readiness of the Ifugao State University. *International Journal of Engineering Research & Technology (IJERT)*, 3(2).

Eslaminejad, T., Masood, M., & Ngah, N. A. (2010). Assessment of instructors' readiness for implementing E-learning in continuing medical education in Iran. *Medical teacher*, 32(10), e407-e412.

Fry, K. (2001). E-learning markets and providers: some issues and prospects. *Education + Training*. 43(4/5), 233-239.

Furaydi, A. A. A. (2013). Measuring E-Learning Readiness among EFL Teachers in Intermediate Public Schools in Saudi Arabia. *English Language Teaching*, 6(7), 110-121.

Goyal, S. (2012). E-learning: Future of education. *Journal of Education and Learning*, 6(4), 239-242.

Habib, H., & Ghulam, B. (2017). Role of ICT in Higher Education. *International Journal of Creative Research Thoughts (IJCRT)*, 5(4).

Hadining, A. F., & Sukanta, W. H. (2019). An Investigation of Student Perspective For E-learning Readiness Measurement. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 5-7.

Hashim, H., & Tasir, Z. (2014, April). E-learning readiness: A literature review. In 2014 *International Conference on Teaching and Learning in Computing and Engineering*. 267-271. IEEE.

Henry, P. (2001). E-learning technology, content and services. *Education + Training*. 43(4), 249-255.

Kalaivani, A. (2014). Role of E-learning in the quality improvement of Higher Education. *Journal of Humanities and Social Science*, 19(11), 15-17.

Kaur, K., & Abas, Z. W. (2004). An assessment of E-learning readiness at Open University Malaysia. 1017-1022.

Liaw, S. S., & Huang, H. M. (2011). A study of investigating learners' attitudes toward E-learning. *5th International Conference on Distance Learning and Education*, 12, 28-32.

Linus, C. (2019). E-Learning and Information and Communication Technology (ICT). *World Applied Sciences Journal*, 37(8): 634-640.

Lakshmi, Y. V., Das, J. & Majid, I. (2020). Assessment of e-Learning Readiness of Academic Staff & Students of Higher Education Institutions in Gujarat, India. *Indian Journal of Educational Technology*, 2(1), 31-45

McKimm, J., Jollie, C., & Cantillon, P. (2003). Web based learning. *Bmj*, 870-873. Retrieved from <https://doi.org/10.1136/bmj.326.7394.870>.

Nehru, R. S. S. (2013). *Encyclopedia of E-learning*. New Delhi, APH Publishing Corporation.

Ngampornchai, A. & Adams, J. (2016). Students' acceptance and readiness for E-learning in Northeastern Thailand. *International Journal of Educational Technology in Higher Education*, 13(340, 1-13. 10.1186/s41239-016-0034-x.

Obi, I. E., Charles-Okoli, A. N., Agunwa, C. C., Omotowo, B. I., Ndu, A. C., & Agwu-Umahi, O. R. (2018). E-learning readiness from perspectives of medical students: A survey in Nigeria. *Nigerian journal of clinical practice*, 21(3), 293.

Okinda, R. A. (2013). KTTC's E-learning Readiness Survey. Retrieved from http://oasis.col.org/bitstream/handle/11599/1780/2013_Okinda_E-learning.pdf?sequence=1&isAllowed=

Pavel, A. P., Fruth, A., & Neacsu, M. N. (2014). ICT and E-learning—catalysts for innovation and quality in higher education. *Procedia Economics and Finance*, 23, 704-711.

Pegu, U. K. (2014). Information and Communication Technology in Higher Education in India: Challenges and Opportunities. *International Journal of Information and Computation Technology*, 4(5), 513-518.

Pingle, S. S. (2011). Higher education students' readiness for E-learning. *TechnoLearn: An International Journal of Educational Technology*, 1(1), 155-165.

Rahim, N. M., Yusoff, S. H. M., & Latif, S. A. (2014). Assessing students' readiness towards E-learning. In *AIP Conference Proceedings*, 1605(1), 750-755.

Rao, L. M., Rao, A. A., Mohan, J. R. & Rao, P. R. (2018). ICT and E-Learning—Catalysts for Quality of Education. *Journal of Emerging Technologies and Innovative Research*, 5(11), 326-330.

Rossi, P. (2009). Learning environment with elements of artificial intelligence. *Journal of E-learning and Knowledge Society*, 5(1), 191-199.

Shamim, M. R. H. & Raihan, M. A. (2015). Effectiveness of Using ICTs to promote teaching and learning in technical education: Case of Bangladesh. *International Journal of Vocational and Technical Education*, 8(2), 12-19.

Sharma, V. (2021). Student enrolment in higher education grew by over 11 per cent in 5 years. *The Tribune India*. Retrieved from <https://www.tribuneindia.com/news/nation/student-enrolment-in-higher-education-grew-by-over-11-per-cent-in-5-years-266370#:~:text=Student%20enrolment%20in%20higher%20education%20witnessed%20an%20increase%20of%2011.4,Pokhriyal%20'Nishank'%20on%20Thursday>.

Sheikh, Y. A. (2017). Higher Education in India: Challenges and Opportunities. *Journal of Education and Practice*, 8(1), 39-42.

Singh, K. (2016). Quality Issues in Higher Education. *Higher Education Review*. Retrieved from <https://www.thehighereducationreview.com/magazine/quality-issues-in-higher-education-ZMRB103195480.html>

Thauffeega, F. (2016). *Institutional and Learner Readiness for eLearning in the Maldives*. Doctoral Thesis. College of Business, Arts and Social Science Brunel University London.

The, M. M., & Usagawa, T. (2018). Change in E-learning Readiness and Challenge for Myanmar Higher Education. *Creative Education*, 9, 1277-1286. Retrieved from <https://doi.org/10.4236/ce.2018.99095>

Tubaishat, A., & Lansari, A. (2011). Are students ready to adopt E-learning? A preliminary e-readiness study of a university in the Gulf Region. *International Journal of Information and Communication Technology Research*, 1(5), 210-215.

Ünal, Y., Alir, G. & Soydal, I. (2014). Students Readiness for E-Learning: An Assessment on Hacettepe University Department of Information Management. In *International Symposium on Information Management in a Changing World* (pp. 137-147). Springer, Berlin, Heidelberg.

Usagawa, T. (2018). Change in E-learning Readiness and Challenge for Myanmar Higher Education. *Creative Education*, 9(09), 1277-1286.

Widyanti, A., Hasudungan, S., & Park, J. (2020). E-learning readiness and perceived learning workload among students in an Indonesian university. *Knowledge Management & E-learning: An International Journal*, 12(1), 18-29.

Wolfe, C. R., & Cedillos, E. M. (2015). E-communications platforms and e-learning. *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)*. 895-902.

Yilmaz, R. (2017). Exploring the role of E-learning readiness on student satisfaction and motivation in flipped classroom. *Computers in Human Behavior*, 70, 251-260.

